

Colonial National Monument Parkway,
Navy Mine Depot Overpass (Mine Depot Overpass)
Milepost 2.86 of the Colonial Parkway
Yorktown Vicinity
York County
Virginia

HAER No. VA-48-A

HAER
VA,
100-YORK,
13-A-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD

COLONIAL NATIONAL MONUMENT PARKWAY:
NAVY MINE DEPOT OVERPASS (Mine Depot Overpass)

HAER
VA,
100-YORK,
18-A-

HAER No. VA-48-A

Location: Milepost 2.86 of the Colonial Parkway (2.2 miles west of the intersection of the parkway and U.S. Route 17), York County, Virginia.

UTM: 18.364030.4123420
Quad: Yorktown

Architect: Charles E. Peterson

Builder: A.N. Campbell & Company
Lynchburg, Virginia

Date of Construction: 1931. Altered 1966, 1980.

Present Owner: Mid-Atlantic Region
National Park Service
U.S. Department of the Interior
Customs House
Second and Chestnut Streets
Philadelphia, Pennsylvania 19106

Present Use: Vehicular bridge carrying the Colonial Parkway over Naval Weapons Road.

Significance: As one of the first completed structures on the Colonial Parkway, the Navy Mine Depot Overpass employed the characteristic colonial brickwork and reinforced concrete arch design indicative of subsequent parkway bridges. Even though parkway motorists saw only the overpass' brick-faced railings, this bridge had its entire exterior covered with brick facing, reflecting the design decision to adhere to the colonial theme in all park structures. The U.S. Navy required that construction of the bridge could not interfere with the operation of the railway linking the Navy Mine Pier to the Weapons Station. Subsequent alterations of the Navy Mine Depot Overpass widened its road deck in order to reduce the number of automobile accidents at this location.

Historian: Joseph P. Meko, 1988

Located in the U.S. Naval Weapons Station (formerly known as the Navy Mine Depot), the Navy Mine Depot Overpass represented one of the first completed structures in the newly created Colonial National Monument. The first phase of construction of the Colonial Parkway spanned the 9.4 miles from Yorktown Cliffs to Hubbard's Lane in York County, Virginia. Begun in June, 1931, this section of the parkway achieved completion in October, 1934, at a total cost of \$940,402.16. Planners in the Bureau of Public Roads divided the building of this initial parkway stretch into five sections. Unit I contained 8.93 miles of grading and drainage work, awarded to Nello D. Teer of Durham, North Carolina, and the construction of bridges at the Navy Mine Depot, Bracken's Pond, Jones Pond, and Cub Creek. Each of these structures had Colonial brick facings.¹ A.N. Campbell & Company of Lynchburg, Virginia, received the Unit I bridge contract and finished the Mine Depot Overpass in 1931.² The total price tag for all Unit I construction amounted to \$219,245.18.³

Although the Mine Depot Overpass today may seem rather unimpressive, back in 1931 several different designs had been suggested. R.E. Toms, the principal highway engineer, advocated the use of timber trestles for the four Unit I bridges. Because travellers on the parkway would only see the bridge railings, "a situation ... entirely different from that of grade separation structures where the architectural outline of the structure occupies the immediate foreground," large portions of the bridge's exterior would not require expensive stone or masonry facing. Timber trestles could be combined with a reinforced concrete bridge deck. Since Colonial builders utilized both brick and timber in their construction activities, no problem regarding the use of proper thematic materials existed. "The outside beams," Toms continued, "could be timber faced and a very attractive type of rustic rail used in connection with this design." The highway engineer objected to the concrete stone-faced arch bridges on the Mount Vernon Memorial Highway on both engineering and financial grounds:

¹ Robinson 1931, 8, states that these four bridges "are to be faced throughout with hand-made Colonial brick."

² Federal Highway Administration 1984, B1. The only mention of the construction of the Navy Mine Depot Overpass in the Colonial National Monument's Superintendent's Monthly Reports occurs in the document for May, 1931, which notes only the calling for bids on Units I and II of the parkway construction (Robinson 1931, 8).

³ Haskett 1985, 2. Although the Bureau of Public Roads exercised immediate project supervision, the National Park Service nevertheless had to approve all plans and accept completed work. For more information on the construction of the Colonial Parkway, see the Historic American Engineering Record documentation report HAER No. VA-48, especially 3-5, 9, 10.

An arch structure is peculiarly adapted to locations where foundations of rock or other stable material can be obtained to support the dead loads and resist the thrust on the arch. Where these conditions are not present [such as along the route from Washington, D.C., to Mount Vernon] foundation and substructure costs are so excessive that the arch type can be justified only by very unusual conditions surrounding the work in question.

Since the same lack of suitable foundations existed along the York River, Toms believed that his linear trestle bridges could be constructed at a much lower cost while still giving the bridge an acceptable life expectancy.⁴

The National Park Service's landscape architects, under the direction of Charles E. Peterson, had other ideas for the Mine Depot Overpass and the other three Unit I bridges. In the approved sketch for the "Mine Pier Overhead Crossing,"⁵ the design called for a structure eighty-two feet in length with spandrels faced with brick in a Flemish bond pattern.⁶ Eight-inch wide highlighted brick sections on the spandrel exteriors appeared seven feet from either end of the bridge and on either side of the single arch. The arch itself had a span of twenty-two feet and reached a maximum height of eighteen feet above the railway that connected the Mine Pier to the Depot. The bricks in and above the twenty-six inch arch ring as well as the bricks eight inches on either side of the arch also appeared as highlighted sections on the bridge. Five brick ribs, each two feet in width, projected two inches from the concrete surface in the interior of the arch. A four-foot retaining wall faced with brick in an English bond pattern and located on either base of the arch receded with the fill. The bridge railings, the only portion of the structure visible to passing motorists, measured one foot ten inches in length and had Flemish bond brick facing.

The brick masonry specifications for the four Unit I bridges set the tone for future brick-faced structures on the Colonial Parkway. These requirements called for the use of two kinds of brick, vitrified paving brick and old-fashioned Virginia style handmade clay brick. Both the paving and the handmade bricks had to be predominantly dark red in color, "except for select red brick of lighter or orange tone to be used where shown on the plans." The specifications required the indiscriminant mixing of at least four shades of brick. The plans also described the use of glazed headers and English and

⁴ Toms 1931.

⁵ Peterson 1931. See Supplemental Information 1.

⁶ Colonial builders used three main kinds of brick bonds. "Common" bond employed rows of stretchers capped by a row of headers. English bond used alternating rows of headers and stretchers. Flemish bond had headers and stretchers alternating within individual rows. For information on brick patterns in Colonial architecture, see Morrison 1952, 103-04.

Flemish bonds. Mortar also came under the masonry specifications, being "composed of one part Portland cement, one part lime putty, and three parts sand." Each of the mortar ingredients as well as the fresh water used in mixing had to be free of impurities so that the mortar took on "a slightly yellow cast" when dried. The arch rings contained special molded bricks that had not been formed at the construction site.⁷

The final plans for the Navy Mine Depot Overpass incorporated numerous alterations in the original sketch and specifications. Located on a slight curve, the bridge proper, when viewed from above, had the shape of a parallelogram with a length of ninety-eight feet and a width of thirty-four and one-half feet (thirty feet for the parkway and four and one-half feet for two curbs). The overpass' abutment footings consisted of a series of large "steps" hidden beneath sloped soil. The bridge also had a 4.0% downgrade travelling in the direction from Williamsburg to Yorktown.⁸ Eighteen steel and concrete rectangular columns measuring five feet by two and one-half feet in cross-section supplemented by 192 reinforced concrete piles symmetrically distributed throughout the structure comprised the bridge's supports.⁹ Flemish bond facing with interspersed raised nine-inch sections covered the bridge's spandrel walls as well as the interior of the arch. Raised brick also brought out the arch and the area above it. The twelve-foot high footwalls displayed English bond facing. New mortar specifications described the appropriate mixture as being composed of one part cement and two parts sand. While the rowlock curb course contained vitrified paving brick, the rest of the bridge received handmade brick. The railroad on Naval Weapons Road passed underneath the bridge along its center and required clearances of eighteen feet in height and eleven feet in width. Curved collision walls flared out along the track on both sides of the overpass. Builders of the Navy Mine Depot Overpass had to maintain the railroad operation clearances throughout the bridge's construction.¹⁰

The Mine Depot Overpass has undergone several major alterations since its original construction in 1931. This bridge has been the site of several automobile accidents that have resulted in motorist injuries. In 1966, Colonial Parkway Project 1B18 called for increasing the overpass' width to thirty-eight and one-half feet, thirty-four and one-half feet for the roadway and four feet for two curbs. This project also included the replacement of the brick arch over the railway by a horizontal beam and concrete pilasters on either side of the overpass opening in addition to the regrading of the soil

⁷ "Brick Masonry" c. 1930-31.

⁸ Bureau of Public Roads 1931, Sheet G-641 ("General Plan").

⁹ Bureau of Public Roads 1931, Sheet G-643 ("Details") and 1 sheet revision ("Pile Layout for Mine Depot Overpass").

¹⁰ Bureau of Public Roads 1931, Sheet G-641 ("General Plan").

along the spandrel walls.¹¹ Park maintenance personnel, however, only removed the curbs on the bridge, thus increasing the parkway's width to thirty-three feet. Despite this improvement, "accidents ... continued to occur, primarily by collision of eastbound vehicles with the west end of the south parapet."¹² In 1974, the Federal Highway Administration drew up plans for redesigning the Navy Mine Depot Overpass. Besides expanding the roadway to thirty-eight feet, the new bridge also included a masonry parapet with flared ends as well as brush curbs one foot wide. A separate bicycle crossing on the York River side of the structure measured eight feet wide.¹³ The actual renovation of the overpass (part of Colonial Parkway Project 1B27), however, did not occur until 1980, the year before the bicentennial celebration of Washington's victory at Yorktown. Besides constructing the bicycle path, "work at the Mine Depot Overpass included removing and replacing the brick parapets, removing 4 inches of the concrete deck and replacing with a new 6-inch reinforced concrete overlay which included deck widening from 30 to 38 feet between curbs."¹⁴ The 1984 inspection concluded that the Navy Mine Depot Overpass has an estimated life of forty years.¹⁵

¹¹ "Mine Depot Overpass Outline Sketch" 1966.

¹² Gedney 1974. Rector (Acting Superintendent of the Colonial National Historical Park) 1977 wrote that "five accidents have occurred [at the Navy Mine Depot Overpass] involving 5 cars and injuring 13 persons since 1960."

¹³ Gedney 1974.

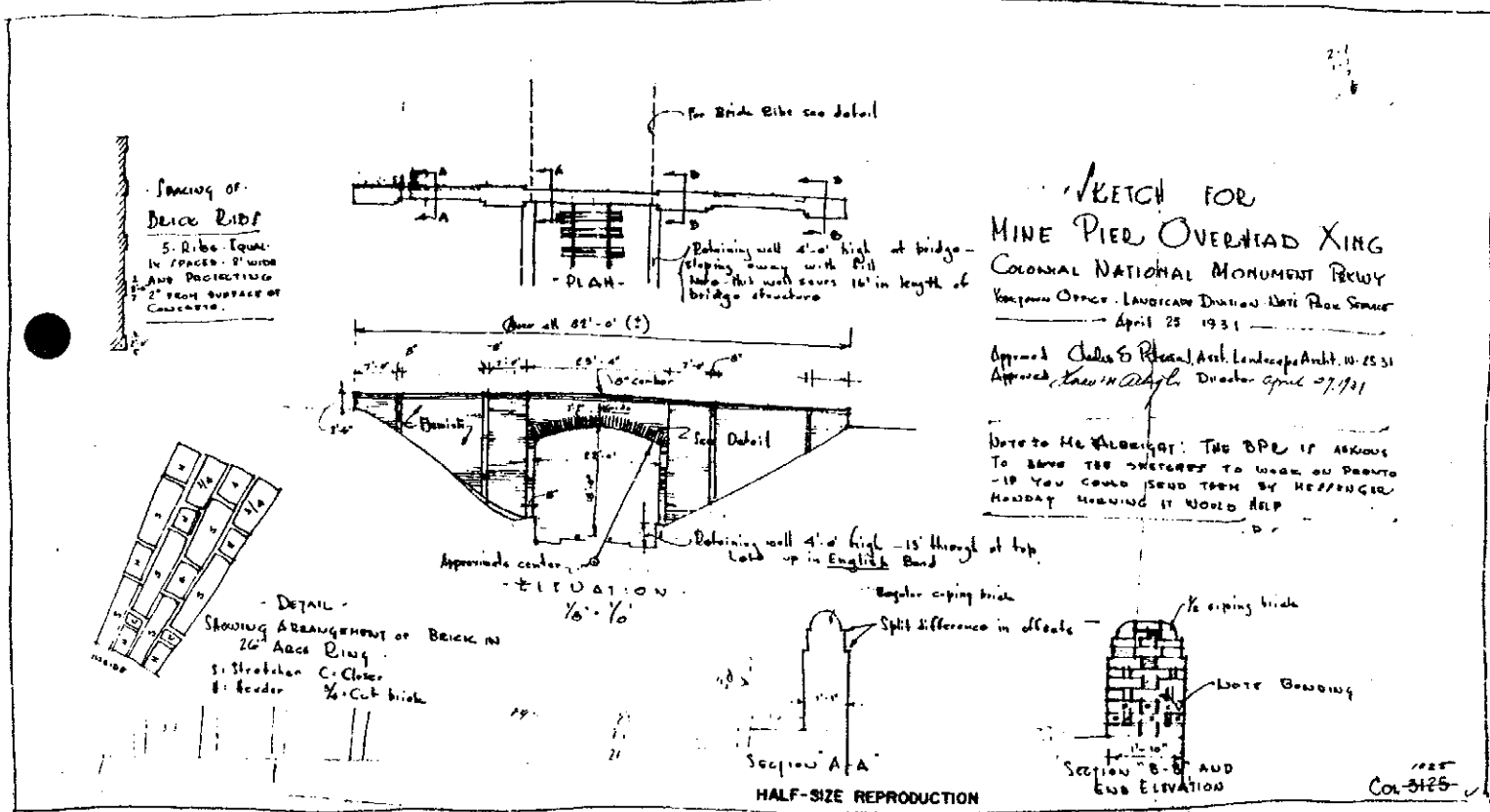
¹⁴ National Park Service et. al. 1981, 1.

¹⁵ Federal Highway Administration 1984, A.

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Supplemental Information

1. Original sketch for the Navy Mine Depot Overpass: 1931.¹⁶



Bibliography

Colonial National Historical Park is abbreviated CNHP. Entries labelled "Navy Mine Depot" can be found in File No. 630-Navy Mine Depot, Colonial Parkway Original Construction Specification files. Entries labelled "Projects" can be found in the Construction Projects files. These CNHP files are located at the Engineer's Office, CNHP Maintenance Division, Yorktown.

"Brick Masonry." c. 1930-31. Unit I Brick Masonry Specifications, Colonial National Monument Parkway. (Specifications refer to brick requirements in Federal Specifications Board-Specification SS-B-671, June 24, 1930; the Navy Mine Depot Overpass had been completed by December, 1931.) [Located in Navy Mine Depot.]

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